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10/784,102	02/20/2004	Vidyadhar Sitaram Kale	0025-013	6911
40972 7590 09/03/2008 HENNEMAN & ASSOCIATES, PLC 714 W. MICHIGAN AVENUE THREE RIVERS, MI 49093				
EXAMINER				
DURNFORD GESZVAIN, DELOON				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/784,102

Applicant(s)

KALE ET AL.

Examiner

Dillon Durnford-Geszvain

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Claims **1-48** are pending, and claims **1, 8-10, 13, 14, 17, 24, 27** and **39** are amended.

Response to Arguments

2. Applicant's arguments with respect to claims **1, 9, 17, 27** and **39** have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

3. Claims **3-5** are objected to because of the following informalities: in line 2 of claim **3** "the integrated circuit chip" should be --the **camera** integrated circuit chip--.

Claims **4** and **5** are objected to as depending from a claim that was objected to. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims **1-18, 20, 21, 23-28, 30-41** and **46-48** are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,798,031 (Honda).
6. As to claim **1**, Honda teaches a camera module apparatus, comprising:
a camera integrated circuit chip (comprising 10A and 12, see Fig. 5);

a lens 3; and

a molding 14A made on the camera integrated circuit chip for holding the lens 3 such that the lens is positioned in relation to the camera integrated circuit chip by the molding (C13 L62-67).

7. As to claim 2, see the rejection of claim 1 and note that Honda further teaches the camera module of claim 1, wherein:

the camera integrated circuit chip is mounted on a printed circuit board (see Fig. 5).

8. As to claim 3, see the rejection of claim 1 and note that Honda further teaches the camera module apparatus of claim 1, further comprising:

a protective cover over the integrated circuit chip (see Fig. 5).

9. As to claim 4, see the rejection of claim 3 and note that Honda further teaches the camera module apparatus of claim 3, wherein: the protective member is a molded spacer 14A (see Fig. 5).

10. As to claim 5, see the rejection of claim 3 and note that Honda further teaches the camera module apparatus of claim 3, wherein: the protective member is a glass sheet 5 (see Fig. 5).

11. As to claim 6, see the rejection of claim 1 and note that Honda further teaches the camera module apparatus of claim 1, wherein: the molding 14A has a recess for receiving the lens 3 (See Fig. 5).

12. As to claim 7, see the rejection of claim 1 and note that Honda further teaches the camera module apparatus of claim 1, wherein: the lens 3 is held in place on the molding 14A by an adhesive 24 (C13 L1-6).

13. As to claim 8, see the rejection of claim 1 and note that Honda teaches the Camera module apparatus of claim 1, wherein: the molding 14A has a recess for positioning the lens 3 relative to the camera integrated circuit chip (Fig. 5).

14. As to claim 9 Honda teaches an integrated camera circuit and lens module, comprising:

a camera integrated circuit chip (comprising 10A and 12);

a holder 14A made at least partially on the camera integrated circuit (C13 L62-67); and

a lens assembly (3 and 22); and wherein

a window 442; and wherein

the lens assembly is affixed to the camera integrated circuit via the holder 14A, the holder enabling the insertion of the lens assemble into the holder, thereby

positioning the lens assembly with respect to the camera integrated circuit (see Fig. 5).

15. As to claim **10**, see the rejection of claim **9**, and note that Honda further teaches the integrated camera circuit and lens module of claim **9**, wherein:

the lens assembly (3 and 22) is rigidly affixed to the camera integrated circuit via the holder 14A such that there is a gap between at least a portion of the lens assembly and a sensor array of the camera integrated circuit (See Fig. 5).

16. As to claim **11**, see the rejection of claim **9** and note that Honda further teaches the integrated circuit and lens module of claim **9**, wherein: the holder 14A is a molded component (C13 L62-67).

17. As to claim **12**, see the rejection of claim **11** and note that Honda further teaches the integrated circuit and lens module of claim **11**, wherein: the lens assembly (3 and 22) is attached to the holder 14A by an adhesive 24 (C13 L1-6).

18. As to claim **13**, see the rejection of claim **9** and note that Honda further teaches the integrated camera circuit and lens module of claim **9**, wherein: the camera integrated circuit is mounted on a circuit board (Fig. 5).

19. As to claim **14**, see the rejection of claim **9** and note that Honda further teaches the integrated camera circuit and lens module of claim **9**, further comprising:

a protective cover held in place over the camera integrated circuit chip by the holder (Fig. 5).

20. As to claim **15**, see the rejection of claim **14** and note that Honda further teaches the integrated camera circuit and lens module of claim **14**, wherein: the protective cover is a molded spacer 22 (see Fig. 5).

21. As to claim **16**, see the rejection of claim **14** and note that Honda further teaches the integrated camera circuit and lens module of claim **14**, wherein: the protective member is a glass sheet 5 (see Fig. 5).

22. As to claim **17**, Honda teaches a method for producing a camera module, comprising:

molding a receptacle 14A over an integrated circuit such that the receptacle is capable of receiving a lens assembly and positioning the lens assembly with respect to the integrated circuit (C13 L62-67);

inserting the lens assembly (3 and 22) into the receptacle; and

securing the lens assembly into the receptacle 14A (via adhesive 24, C13 L1-6).

23. As to claim **18**, see the rejection of claim **17** and note that Honda further teaches the method of claim **17**, wherein:

the lens assembly is secured by an adhesive 24 (C13 L1-6).

24. As to claim **20**, see the rejection of claim **17** and note that Honda further teaches the method of claim **17**, wherein: the receptacle 14A includes a recessed portion for receiving the lens assembly (Fig. 5).

25. As to claim **21**, see the rejection of claim **20** and note that Honda further teaches the method of claim **20**, wherein: the recess portion includes a projection for fixing the distance of the lens assembly from the integrated circuit (Fig. 5).

26. As to claim **23**, see the rejection of claim **17** and note that Honda further teaches the method of claim **17**, further comprising:

placing a protective cover over the integrated circuit (See Fig. 5).

27. As to claim **24**, see the rejection of claim **23**, and note that Honda further teaches the method of claim **23**, wherein: the placing of the protective cover over the integrated circuit occurs during molding of the receptacle over the integrated circuit (14A is interpreted as a protective cover and therefore it is placed during its molding).

28. As to claim **25**, see the rejection of claim **23** and note that Honda further teaches the method of claim **23**, wherein: the cover is a molded spacer (14A, see Fig. 5).

29. As to claim **26**, see the rejection of claim **23** and note that Honda further teaches the method of claim **23**, wherein: the protective cover is a glass plate 5 (Fig. 5).

30. As to claim **27**, Honda teaches a camera apparatus, comprising:
an integrated circuit camera apparatus (10A and 12a, Fig. 5) having thereon a photosensitive array (10A);

a lens assembly (3 and 22) for focusing light on the photosensitive array 10A (Fig. 5);

the lens assembly (3 and 22) is positioned and rigidly affixed on the integrated circuit camera apparatus by a lens assembly receiving apparatus 14A made integrally on the integrated circuit camera apparatus (C13 L62-67).

31. As to claim **28**, see the rejection of claim **27** and note that Honda further teaches the camera apparatus of claim **27**, wherein:

the lens assembly has a housing 22 for receiving at least one lens 3.

32. As to claim **30**, see the rejection of claim **27** and note that Honda further teaches the camera apparatus of claim **27**, wherein:

the integrated circuit camera apparatus is connected to a circuit board 12.

33. As to claim **31**, see the rejection of claim **27** and note that Honda further teaches the camera apparatus of claim **27**, wherein:

the integrated circuit camera apparatus is affixed to a circuit board 12; and
the lens assembly receiving apparatus 14A is formed at least partially on the
circuit board (see Fig. 5).

34. As to claim 32, see the rejection of claim 31 and note that Honda further teaches the camera apparatus of claim 31, wherein: the lens assembly receiving apparatus 14A is a molded receptacle (C13 L62-67).

35. As to claim 33, see the rejection of claim 31 and note that Honda further teaches the camera apparatus of claim 31, wherein: the lens assembly (3 and 22) is rigidly affixed within the lens assembly receiving apparatus 14A (Fig. 5).

36. As to claim 34, see the rejection of claim 31 and note that Honda further teaches the camera apparatus of claim 31, wherein: the lens assembly (3 and 22) is affixed within the lens assembly receiving apparatus 14A by an adhesive 24 (Fig. 5).

37. As to claim 35, see the rejection of claim 27 and note that Honda further teaches the camera apparatus of claim 27, further comprising: a protective cover fixed between the integrated circuit camera apparatus and the lens assembly by the lens assembly receiving apparatus (see Fig. 5).

38. As to claim **36**, see the rejection of claim **35** and note that Honda further teaches the camera apparatus of claim **35**, wherein: the protective cover is a **molded** spacer (14A, see Fig. 5).

39. As to claim **37**, see the rejection of claim **35** and note that Honda further teaches the camera apparatus of claim **35**, wherein: the protective cover is a glass plate 5 (Fig. 5).

40. As to claim **38**, see the rejection of claim **35** and note that Honda further teaches the camera apparatus of claim **35**, wherein: the lens assembly receiving apparatus is an overmold formed over the integrated circuit camera apparatus (C13 L62-67 and Fig. 5).

41. As to claim **39**, Honda teaches a camera module apparatus, comprising:
a camera integrated circuit chip (10A and 12);
a lens 3; and
means for holding 14A the lens 3 such that the lens is positioned in relation to the integrated circuit chip by said means for holding the lens, said means for holding the lens including a component molded on the camera integrated circuit lens (Fig. 5 and C13 L62-67).

42. As to claim **40**, see the rejection of claim **17** and note that Honda further teaches the method of claim **17**, wherein: the molding of the receptacle 14A over the integrated

circuit includes contacting a top surface of the integrated circuit with a mold insert (note that if the molding is carried out in a manner such as that taught in Honda then this step is inherent as the receptacle 14A does not cover the entire surface of the integrated circuit and therefore there must be some sort of mold insert contacting the integrated circuit as otherwise the integrated circuit would be entirely covered by the receptacle).

43. As to claim **41**, see the rejection of claim **40** and note that Honda further teaches the method of claim **40**, wherein: the mold insert includes a compliant surface to protect the integrated circuit (in light of the rejection of claim **40** there must be a surface that contacts the integrated circuit and therefore protects it during the molding; as to the surface being compliant, all surfaces are compliant to some degree).

44. As to claim **42**, see the rejection of claim **17** and note that

45. As to claim **46**, see the rejection of claim **1** and note that Honda further teaches the camera module of claim **1**, wherein:

a top surface of the camera integrated circuit chip includes a sensor array 10;
and

the molding is adhered to the top surface (see Fig. 5).

46. As to claim **47**, see the rejection of claim **9** and note that Honda further teaches the integrated camera circuit and lens module of claim **9**, wherein:

a top surface of the camera integrated circuit includes a sensor array 10; and
the holder is adhered to the top surface (see Fig. 5).

47. As to claim 48, see the rejection of claim 27 and note that Honda further teaches the camera apparatus of claim 27, wherein:

the photosensitive array 10A is on a top surface of the integrated circuit camera apparatus (see Fig. 5); and

the lens assembly receiving apparatus 14A is adhered to the top surface (see Fig. 5).

Claim Rejections - 35 USC § 103

48. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,798,031 (Honda) in view of US 2002/0191103 (Akimoto).

49. As to claim 19, see the rejection of claim 17 and note that Honda may not teach that the integrated circuit is secured to a circuit board before the receptacle is molded over the integrated circuit. However, Akimoto teaches a method of producing a camera module (fig. 2) where an integrated circuit 2 is secured to a circuit board 5 before a receptacle 34 is placed over the integrated circuit. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have attached the integrated circuit of Honda from above the circuit board instead of from below as this would allow for the circuit board to be better protected and more securely

attached.

50. Claim **22** is rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,798,031 (Honda) in view of US 7,009,654 (Kuno).

51. As to claim **22**, see the rejection of claim **17** and note that Honda does not teach that the camera is attached to a flex circuit. However, Kuno teaches a camera module attached to a flex circuit (C5 L42-47). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have attached the camera module of Honda to a flex circuit as this would provide for a camera module that would be less likely to break.

52. Claim **29** is rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,798,031 (Honda) in view of US Pre-Grant Publication 2004/0109079 (Fujimoto)

As to claim **29**, see the rejection of claim **27** and note that what Honda doesn't teach is the lens assembly having a housing for receiving two lenses. However, Fujimoto teaches a lens assembly for an image sensor module that has a housing for receiving two lenses (see Fig. 1 and [0026]). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have made the housing of Honda in such a fashion so as to hold two lenses as is done in the invention of Fujimoto et al. as compared to the case where a single lens is used, the use of the two lenses of Fujimoto et al. can increase the number of apertures, prevent the

distortion of a captured image and provide a clear captured image.

53. Claims **42-45** are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,798,031 (Honda) in view of US 7,199,438 (Appelt).

54. As to claim **42**, see the rejection of claim **17** and note Honda does not teach molding receptacles or attaching receptacles over a plurality of integrated circuits simultaneously. However, Appelt teaches molding receptacles 430 over a plurality of integrated circuits simultaneously (see Column 1 line 65 to Column 2 line 2 and note that the method of Appelt may be carried out with the substrate in matrix array). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have molded receptacles over a plurality of integrated circuits as this would allow for mass production and would further reduce the cost of an optical semiconductor package.

55. As to claim **43**, see the rejection of claim **17** and note Honda does not teach molding receptacles or attaching receptacles when the integrated circuit is physically coupled to other integrated circuits. However, Appelt teaches molding receptacles 430 over a plurality of integrated circuits simultaneously (see Column 1 line 65 to Column 2 line 2 and note that the method of Appelt may be carried out with the substrate in matrix array). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have molded receptacles over a plurality of integrated circuits as this would allow for mass production and would further reduce the cost of an

optical semiconductor package.

56. As to claim **44**, see the rejection of claim **43** and note that this limitation is covered in the rejection of claim **43**.

57. As to claim **45**, see the rejection of claim **43** and note that Honda in view of Appelt further teaches the method of claim **43**, wherein: the integrated circuit and the other integrated circuits are physically coupled by being mounted on a unitary substrate (see Column 1 line 65 to Column 2 line 2 and note that the Examiner interprets the substrate in matrix array as the substrate being a unitary substrate); and
the integrated circuit and the other integrated circuits are subsequently separated by dividing the unitary substrate (note that this is inherent if they are assembled on a unitary substrate and they are then packaged separately).

Conclusion

58. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dillon Durnford-Geszvain whose telephone number is (571)272-2829. The examiner can normally be reached on Monday through Friday 8 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dillon Durnford-Geszvain

8/26/2008

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